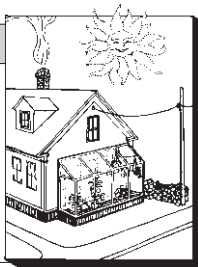


Hydronic Chic

by Alex Wilson



While the American heating industry sits back deciding where to hold its annual conventions, the Europeans are sneaking up from behind. Recent years have seen an influx of high-quality European hydronic radiators and controls. Despite their high prices, these systems have great appeal. They outperform their American counterparts in comfort, sophistication, and style.

Comfort. Increasingly, heating systems are being designed to deliver comfort rather than simply heat. This distinction may seem forced to some, but there's a difference. Typical American hydronic radiators operate at around 180°F. They function by heating the air surrounding them. The heated air rises up to the ceiling, causing significant temperature stratification in the room—often as much as 10 to 15°F. A lot of people aren't comfortable until their feet are warm, which might require that the ceiling be 80°F.

On top of that, typical domestic controls turn the system on when it gets too cold and off when it gets too hot. The same temperature water is circulated through the system whether the outdoor temperature is 50°F or -20°F. Room temperatures cycle up and down. Lots of heat is provided, but only marginal comfort.

Enter radiant heat, which promises more comfort and economy. As its name implies, radiant heat relies more on thermal radiation than convection. Radiant floor systems provide the ultimate application of the concept: the entire floor surface serves as a "radiator." It is kept only slightly warmer than body temperature and radiates heat evenly into the room, warming people directly. Because the surface is relatively cool, convection does not play a big role, and temperature stratification in the room is kept to a minimum. With radiant heat, individuals generally feel warmer at lower thermostat settings. So along with increased comfort, your energy consumption is reduced, (probably 25 to 30 percent).

That's the basic idea behind the

new generation of European radiators (new to Americans, that is). By increasing the surface area of radiators facing into the room and reducing the temperature, more of the heat is delivered by means of thermal radiation, and less by convection. Most of the European designs are intended to operate with relatively low-temperature water (100 to 140°F). They provide adequate heat because they cover a larger area than typical American systems and are designed to operate more continuously. Two installers of this type of system, Matthew Friedlander, (Thermal Options, Brattleboro, Vt.) and Denny Adelman, (Exotech Design/Sunrise Energy Center, Newport, R.I.) report that their clients have been very satisfied with the comfort levels achieved with several of these products. (Friedlander carries Brugman, while Adelman carries Runtal, and DEF, also known as Trixa; both install radiant floor systems as well.)

Sophistication. Heat delivery is only half the story with these advanced European hydronic systems. Most are sold with very sophisticated controls. With some, the thermostats sense mean radiant temperature in the room rather than air temperature. Regulators sense the outside temperature and adjust the boiler temperature accordingly. This keeps the circulating water no hotter than necessary, both saving energy and reducing temperature fluctuation in the room as the circulation pump goes on and off.

Microprocessor controls have revolutionized this kind of control, allowing complex programmed set-back instructions as well. This level of control, along with sophisticated balancing valves, make separate room-to-room zoning easier than with most American systems.

Style. While the theory and technology behind the European systems provide the big attraction for energy engineers, it is their styling that sells most of them. They are designed to be seen. It should be noted that these systems must be attractive, because fairly large areas of radiator are necessary to deliver adequate heat, and the radiators need

to be directly visible in the room for proper radiant heat delivery.

Such radiators must also be low-profile so they don't interfere with furnishings and room functions. Most of them are installed right against the wall, extending out only an inch or two (though multiple combinations are available from some manufacturers to get more heat per foot of radiator).

The most exciting products are those that combine functions. Arbonia and Fellingsbro (See listing at the end of article) offer attractive bathroom towel holders that both heat the bathroom and keep the towels toasty while you're in the shower. Runtal offers an attractive grille radiator that can be used as a bannister support or room divider, especially appropriate in commercial buildings. Vanpan, with the cleanest and simplest lines of any of the products surveyed, is designed to replace conventional wooden baseboard around the whole room perimeter—a practical (and novel) idea.

The Products

Here's a brief look at the European line-up. For more specifics about the products, contact the distributors directly. Addresses are listed below.

Arbonia. Imported by Euro-Tech, Arbonia offers a full line of panel radiators and convectors. But of the Swiss-manufactured Arbonia products available, Euro-Tech primarily promotes the bathroom-heating towel-rack models. The stylish racks are available in a wide range of colors, as well as chrome- and gold-plated. Both hydronic and electric models are available (the electric with an energy-saving timer).

Brugman. Brugman radiators are manufactured in Germany and distributed in America by Feenstra Heating Systems. Like most of the panel-type radiators, the Brugman line is available in numerous lengths, widths and configurations, up to three panels thick, with or without "lamelles" (convection fins). The European standard for describing panel radiators, used by Brugman and most others, seems to be as follows: "P"- single panel, no convectors; "K"- single panel, one convector; "PP"- double panel, no convectors; "PK"- double panel, one convector; "KK"- double panel, two convectors; and "KKK"- triple panel, three convectors.

DEF Radiators. These Belgium radiators also known as Trixa, and imported by Dynatherm, are very much like the other European panel radiators available (Brugman, Runtal, etc.).

Fellingsbro Radiators. Fellingsbro, distributed in America by EnerJee

International, is a Swedish line of panel radiators. They are available in a wide range of sizes and configurations, including a panel with integral towel rack.

Runtal Radiators. Runtal, a Swiss company, is one of Europe's largest manufacturers of hot water and steam radiators. Over the past 30 years, some 10 million Runtal radiators have been installed throughout Europe. Now Runtal North America, Inc. manufactures the radiators in Massachusetts. They offer a diverse line of panel, column, and grille radiators.

Thermopanel. Thermopanel is a Swedish panel radiator distributed in America by Macon Control Corp. Panels can be used singly or doubled up for greater heat output.

Thor. This is a panel radiator manufactured in Denmark and distributed in America by Euro-Tech. Very similar to Brugman and Runtal.

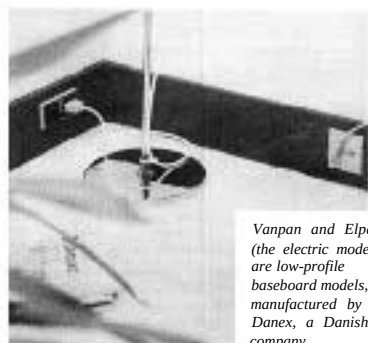
Vanpan. Vanpan is a baseboard radiator imported from Denmark by Danex, Inc. These attractive, heavy-duty cast aluminum radiators are 5-3/8 inches high and only extend 1 inch from the wall surface. They are designed to replace conventional wooden baseboards around the entire room perimeter. Sections of radiator are joined by flexible, high-temperature, corrosion-resistant polyethylene piping. The company also manufactures a low-profile electric baseboard radiator (Elpan) used in the same way, which extends only 3/4 inch from the wall.

The Future

It will be interesting to see whether or not the American companies will finally embrace the radiant version of hydronic heating. While the European systems are expensive, I wonder what Japan and Taiwan have waiting in the wings.

For the time being, if you choose this route, be prepared to pay a premium. On top of the cost to import, the U.S. dollar is weak relative to European currency. This gives Runtal an important advantage because their radiators are manufactured here. Other companies may follow suit. As for the bathroom towel heaters and low-profile baseboard units, there is currently no way around the high prices. ■

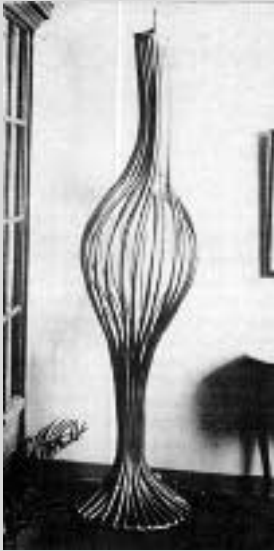
Alex Wilson is a technical writer based in Brattleboro, Vermont who specializes in energy and building issues.



Both Arbonia and Fellingsbro radiators come in towel-rack models. Arbonia is Swiss-manufactured, Fellingsbro Swedish.

Vanpan and Elpan (the electric model) are low-profile baseboard models, manufactured by Danex, a Danish company.

**Now, For Something
Completely Different...**



For those who want something a little different in hydronic heating, consider this French hydronic sculpture. Each unit is handmade by sculptor Alain Cantarel from copper tubing. The "heaters" provide 2,400 to 12,000 Btu/hr and cost from \$2,000 to \$5,000, depending on size and form. The 8-foot high unit shown has a heat output of 12,000 Btu/hr and a price of \$3,425. According to the distributor, "each unit comes with a 10-year warranty, though in the product's 15-year history, no one has ever had to use it." Available from EnerJee, Int'l, 32 S. Lafayette Ave., Morrisville, PA 19067.

Products mentioned in the article:

Arbonia & Thor

Euro-Tech
P.O. Box 5
N. Marshfield, MA 02059
(617) 837-3111

Brugman

Feenstra Heating Systems
P.O. Box 425
Burlington, VT 05402
(802) 863-1864

DEF Dynatherm

Hilton and Holly Streets
Easton, PA 18042
(215) 258-1541

Fellingsbro

EnerJee International
32 S. Lafayette Ave.
Morrisville, PA 19067
(215) 295-0557

Runtal North America

187 Neck Road
Ward Hill, MA 01830
(617) 373-1666

Thermopanel

Macon Control Corp.
1128 N. Saginaw St.
Durand, MI 48429
(517) 288-3131

Vanpan & Elpan

Danex, Inc.
Route 23, Box 66
Acra, NY 12405
(518) 622-3160